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(54) PRODUCTION OF BEAM EXPANDER AND DIFFRACTION GRATING

(57) Abstract:

PURPOSE: To obtain the compact beam expander at a low cost by providing two sheets of diffraction gratings intersecting with an excimer laser beam.

CONSTITUTION: The 1st reflection type diffraction grating 1a and the 2nd reflection type diffraction grating 2a are so disposed as to intersect orthogonally with each other. The excimer laser beam 3 before being expanded by these diffraction gratings becomes a laser beam 4 expanded to a square shape. The laser light 3 emitted from an excimer laser beam source is uniformly expanded in the two directions within the plane perpendicular to the optical axis by the 1st diffraction grating 1a and the 2nd diffraction grating 2a orthogonal with the 1st diffraction grating 1a in such a manner, by which the square luminous flux having a uniform and wide area is obtd. The same function as the function

of ordinary devices is obtd. in this way only by two sheets of the diffraction gratings in place of the costly optical lenses for which many pieces of optical parts constituting the device are used.

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